

OPERATING PROCEDURES – SEMIAUTOMATIC MODE

K & S Gold Wire Bonder

Rev. 12/27/2001

Workholders

1. Machine power should be OFF.
2. Choose one of the 3 types of workholders: dual-in-line, flat pack and TO-5.
3. Connect the T.C. and heater cables of the desired workholder.
4. Position sample on workholder.
 - On the dual-in-line and flat pack holders, adjust the clamps by loosening the four screws.
 - The TO-5 holder uses a magnetic hold down. Align lip of TO-5 package with slit in holder and the magnetic force will pull it into place.
5. Turn base counter-clockwise to lowest position. Set holder aside.



Capillary Tip

1. To install capillary:
 - Loosen set screw with Allen wrench.
 - Gently push the unwanted capillary down through the head until it drops free into a container then store the container in the **USED** jar.
 - With a tweezers retrieve a fresh capillary from the jar.
 - Insert capillary so that the same amount protrudes out of the top and bottom of the transducer.
 - Tighten set screw with Allen wrench.
 - Position the setup gauge under the capillary.
 - While holding gauge, loosen the set screw and push the capillary down until its tip just rests on the gauge.
 - Tighten the set screw.

NOTE: Do not move gauge while in contact with capillary tip.

Thread Wire

Power unit **ON**. [Red toggle switch on left panel]

1. To thread gold wire:
 - Set **CLAMP** switch to the up position. [left panel]
 - Ensure that wire is under the glass plate and the wire guide.
 - Pull wire further through wire guides and open jaws of drag clamp and wire clamp.
 - Set **CLAMP** switch to the down position. This holds the wire.
 - Using tweezers, feed the wire through the capillary so that it protrudes about ½ inch from the tip.
 - Click **LEFT** mouse button to go through the **1st** and **2nd** bonding operation.

TIP: Hold wire with tweezers and snap a portion off. This produces a straight point of wire to insert into the capillary.

- End result is a ball with tail ready for next bonding.

Pre-Check

1. Power unit **ON**. [Red toggle switch on left panel]
2. Ensure that the **1st** and **2nd** indicators are on.
3. When the **2nd** indicator goes out, set and hold the **TEST** switch in the down position. The U/S indicator should light.
4. Release the **TEST** switch.
5. The temperature of the workholder will ramp. Allow 20-30 minutes for temperature to stabilize.
6. To set temperature, push SET button.
 - Use UP button to increase temperature; use DOWN button to
7. Adjust distance of eyepieces. Set magnification to lowest setting.
8. Toggle switch to **SEMI/AUTO** [right control panel].



Workholder Height

1. Set **LOOP** dial to **0**.
2. Press and release **LEFT** mouse button for **1st** bond in air. Ensure the **2nd** indicator is on.
3. Position workholder on stage with first bonding site under tip.
4. Adjust microscope so the tip is in sharp focus.
5. Carefully hold the workholder and turn the base of the holder clockwise to raise the workholder until the capillary tip just touches the lowest bonding level.
6. Set **LOOP** dial to **10**.
7. Move the workholder from under the capillary tip.
8. Press and release **LEFT** mouse button to perform **2nd** bond in air. The bonding head is in the reset position.



1st Search Height

Set **1st** and **2nd** Search dials at high settings.

1. Position workholder under tip. Adjust microscope, if necessary, until bonding area is in sharp focus.
2. Click and hold **LEFT mouse** button once for **1st** bond.
3. Adjust **1st** Search dial (top knob, left panel) to a distance 1.5 times the ball size.
4. Release mouse. This is **1st** bond.



LOOP control and SEARCH controls

Loop Height

1. The **LOOP** dial controls the length or loop height of the gold wire. [left control panel]
2. Turn the **LOOP** dial as the mouse moves the workholder to the second bonding site.

2nd Search Height

1. Press and hold **LEFT** mouse button.
2. Adjust **2nd Search** dial (bottom knob, left panel). Distance should be 1.5 times the size of the ball.
3. Release button.

Operation

Press and hold the left button of the mouse. This lowers the bonding head to the first search height.

1. Press and hold the left button, then move the mouse to maneuver the bonding area under the capillary.
2. Release the left button. This is the first bond.
3. Press and hold the left button.
4. Move the mouse to position for the second bonding site.
5. Release the left button. This is the second bond.



RIGHT CONTROL PANEL

The **SHORT** indicator turns on if a small gap exists between the tail and wand – decrease **TAIL** dial.

The **OPEN** indicator turns on if a large gap exists between the tail and the wand – increase **TAIL** dial.

Completion

1. Turn off power.
2. Remove workholder from stage.
3. Allow to cool before removing sample

**RECORD USE IN
LOG BOOK.**